

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 30 SEP 2005



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Applicant's or agent's file reference DC5080PCT1	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/US2004/008157	International filing date (day/month/year) 16.03.2004	Priority date (day/month/year) 17.03.2003
International Patent Classification (IPC) or national classification and IPC C09J183/07		
Applicant DOW CORNING CORPORATION et al.		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ sent to the applicant and to the International Bureau a total of 3 sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 25.04.2005	Date of completion of this report 29.09.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Lentz, J.C. Telephone No. +31 70 340-2130 

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/008157

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-24 as originally filed

Claims, Numbers

1-10 filed with the demand

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☒ the claims, Nos. 2
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.

- 1 The following document is referred to in this communication:
D1 : EP 0 108 208 A (GENERAL ELECTRIC) 16 May 1984 (1984-05-16)

D1 discloses a composition comprising (A) a vinyl stopped siloxane, see claim 6, (B) a siloxane having M and Q units, see claim 1, (C) reactive diluent, see claim 1 under ingredient (2), (D) a hydrogen siloxane crosslinker, see page 10, lines 5-13, (E) a hydrosilylation catalyst, see claim 1. The composition should also be solventless.

Even though D1 thus discloses the same ingredients, the product of D1 is a controlled release additive rather than an adhesive because of different proportions of the ingredients, see for example example 1, page 14 of D1. D1 does thus not disclose the claimed proportions of present claim 1. The application thus fulfils the requirements of Art 33(2) PCT. Furthermore, D1 does not indicate the present solution, i.e. it is not obvious to go from the release product of D1 to the opposite, an adhesive, of the present application. The application thus also fulfils the requirements of Art 33(3) PCT.

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CLAIMS

1. A solventless pressure sensitive adhesive (PSA) comprising (A) 15 to 40 weight percent of at least one organosiloxane polymer having on average at least two aliphatic unsaturations per molecule; (B) 50 to 80 weight percent of at least one resin having $R_3SiO_{1/2}$ (M units) and
5 $SiO_{4/2}$ (Q units) where each R is an independently chosen monovalent hydrocarbon group free from aliphatic unsaturation and comprising 1 to 20 carbon atoms; (C) 2 to 7 weight percent of at least one reactive diluent; (D) at least one Si-H containing crosslinker comprising an organohydrogensilicon compound having on average at least two silicon bonded hydrogen atoms per molecule; (E) at least one hydrosilylation catalyst; and (F)
10 optionally at least one inhibitor.

2. (Cancelled)

3. The solventless PSA of claim 1 where Component (A) is chosen from
15 hexenyldimethylsiloxy-terminated polydimethylsiloxane-polymethylhexenyldimethylsiloxane copolymers, hexenyldimethylsiloxy-terminated polydimethylsiloxane polymers, vinyl dimethylsiloxy-terminated polydimethylsiloxane polymers, vinyl or hexenyldimethylsiloxy-terminated poly(dimethylsiloxane-silicate) copolymers, mixed trimethylsiloxy-vinyl dimethylsiloxy terminated poly(dimethylsiloxane-vinyl methylsiloxane-silicate) copolymers, and vinyl or hexenyldimethylsiloxy terminated poly(dimethylsiloxane-hydrocarbyl) copolymers having a viscosity from 150 to 499 mPa.s at 25°C.
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4. The solventless PSA of any of claims 1 or 3 where component (D) is chosen from
(D1) diorganohydrogensiloxy-terminated polydiorganosiloxane polymers,
25 diorganohydrogensiloxy-terminated polyorganohydrogensiloxane polymers, diorganohydrogensiloxy-terminated polydiorganosiloxane-polyorganohydrogensiloxane copolymers, triorganosiloxy-terminated polydiorganosiloxane-polyorganohydrogensiloxane copolymers, triorganosiloxy-terminated polyorganohydrogensiloxane polymers where the organo substituent on these organohydrogensiloxanes comprises a monovalent hydrocarbon
30 group having from 1 to 20 carbon atoms;

(D2) an organohydrogensiloxane reaction product having a viscosity of from 150 to 50,000 mPa.s obtained by mixing: (a) at least one organohydrogensiloxane containing at least three silicon-bonded hydrogen groups per molecule, (b) at least one compound containing at least two alkenyl groups per molecule, and (c) a platinum group metal-containing catalyst

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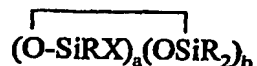
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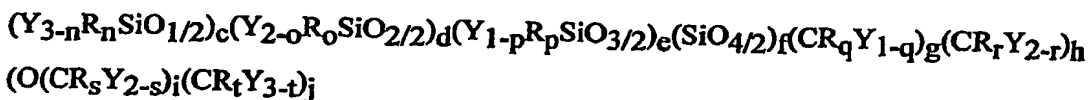
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which is present in an amount sufficient to provide 0.1 to 10 weight parts of platinum group metal per million weight parts of (a)+(b), with the proviso that the ratio of the number of silicon-bonded hydrogen atoms of Component (a) to the number of alkenyl groups of Component (b) is at least 4.6:1; and

- 5 (D3) an organohydrogensiloxane containing at least two silicon-bonded hydrogen atoms per molecule described by formula (II):



- where each R is independently selected from a hydrogen atom and a monovalent hydrocarbon group comprising 1 to 20 carbon atoms which is free from aliphatic unsaturation, a is an integer from 1 to 18, b is an integer from 1 to 19, a + b is an integer from 3 to 20, each X is an independently selected functional group selected from a halogen atom, an ether group, an alkoxy group, an alkoxyether group, an acyl group, an epoxy group, an amino group, or a silyl group, or a -Z-R⁴ group, where each Z is independently selected from an oxygen and a divalent hydrocarbon group comprising 2 to 20 carbon atoms, each R⁴ group is independently selected from -BR_uY_{2-u}, -SiR_vY_{3-v}, or a group described by formula (III):



- 20 where B refers to boron, each R is as described above, the sum of c+d+e+f+g+h+i+j is at least 2, n is an integer from 0 to 3, o is an integer from 0 to 2, p is an integer from 0 to 1, q is an integer from 0 to 1, r is an integer from 0 to 2, s is an integer from 0 to 2, t is an integer from 0 to 3, u is an integer from 0 to 2, v is an integer from 0 to 3, each Y is an independently selected functional group selected from a halogen atom, an ether group, an alkoxy group, an alkoxyether group, an acyl group, an epoxy group, an amino group, or a silyl group, or a Z-G group, where Z is as described above, each G is a cyclosiloxane described by formula (IV):

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SUBSTITUTE SHEET

AMENDED SHEET

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where R and X are as described above, k is an integer from 0 to 18, m is an integer from 0 to 18, k+m is an integer from 2 to 20, provided in formula (III) that one of the Y groups is

5 replaced by the Z group bonding the R⁴ group to the cyclosiloxane of formula (II), and provided further if g+h+i+j>0 then c+d+e+f>0.

5. The solventless PSA of any of claims 1, 3 or 4 where the reactive diluent comprises at least one hydrocarbon compound comprising 8 to 18 carbon atoms and at least one aliphatic
10 unsaturation.

6. The solventless PSA any of claims 1 and 3-5 where the reactive diluent comprises at least one alkene comprising 12 to 14 carbon atoms having a terminal double bond.

15 7. The solventless PSA any of claims 1 and 3-6 where the reactive diluent is tetradecene.

8. The solventless PSA any of claims 1 and 3-7 where the M:Q ratio of the resin (B) is from 0.6:1 to 1.9:1 and it contains no more than 1 weight percent silanol.

20 9. An article having on at least one surface the solventless PSA of claims 1 and 3-8.

10. The article of claim 9 where the article is chosen from polyester film, polyimide film, silicone rubber or foam, metal, glass impregnated cloth, paper or plastic coated paper, and fluorocarbon or fluorosilicone treated supports.

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